

ON-LINE FLASH POINT MONITOR

45607D NEC Ex-Proof • 45607H CENELEC Ex-Proof

PROCESS/ON-LINE

A quick and simple on-line flash point monitor that's right for your application!

The PSPI On-line Flash Point Monitor is a continuous on-stream process monitor for measuring the flash point of hydrocarbon process streams. The 45607 simulates ASTM D 56 testing procedures with an average cycle time of less than seven minutes. ASTM D 93 Pensky Martens test results can also be established using laboratory analysis. No catalyst is used, so sulfur sensitivity is completely eliminated. With the 45607 On-Line Flash Point Monitor, analyzer software configuration and other functions can be modified without opening the explosion-proof enclosure, making it simple to operate and maintain.

- Measures flash point temperatures from 10° to 121°C (50° to 250°F) with repeatability of $\pm 1.0^{\circ}\text{C}$ ($\pm 2^{\circ}\text{F}$)
- Measurement correlates with either ASTM D 56 (Tag) or D 93 (Pensky Martens) Closed Cup
- All functions available without opening explosion-proof housing
- No catalyst used, therefore monitor is insensitive to sulfur
- Typical applications are locations where automatic, on-line composition analysis of petroleum products, solvents, and chemicals is required



THEORY OF OPERATION

The PSPI 45607 Flash Point Monitor combines sophisticated microprocessor control with highly reliable flash ignition technology to accurately determine flash points over a range of 10° to 121°C (50° to 250°F).

Sample and air are fed to the measurement enclosure where they are mixed and fed into the Flash Cup Assembly. The mixture flows past a cartridge heater and a liquid space RTD sensor into the base of the flash cup. Excess liquid overflows to a drain while the fuel-air vapors rise past a splash shield, vapor-space thermocouple, and high voltage electrodes before venting to drain.

The temperature of the fuel-air mixture is slowly increased while a high voltage electrode circuit generates a spark. The vapor-space thermocouple is constantly monitored for a sudden rise in temperature. When flash occurs, the vapor-space thermocouple spikes. The sample temperature at the rate of ignition, as measured by the liquid space RTD sensor, is reported as the flash point temperature and a new measurement cycle is initiated. The flash point temperature is displayed on the monitor's digital readout and is output as a 4-20 mAdc signal.

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SPECIFICATIONS

Performance

- **Accuracy:** $\pm 1.0^{\circ}\text{C}$ ($\pm 2^{\circ}\text{F}$); Correlates with ASTM D 56 Tag Closed Cup or D 93 Pensky Martens Closed Cup methods
- **Response Time:** Cycle time varies with process operating conditions; typically 1 to 7 minutes
- **Ambient Temperature Limits:** 5° to 40°C (41° to 104°F); weather protection required; no direct sunlight

Sample Requirements

- **Flow Rate:** 30 to 40 ml/minute filtered sample
- **Pressure:** 0.35 to 0.70 kg/cm² (5 to 10 psig)
- **Temperature:** At least 15°C (30°F) below lowest expected flash point temperature
- **Viscosity:** No greater than 220 cSt (1000 SSU) at 38°C (100°F)
- **Return Pressure:** Atmospheric return required

Utility Requirements

- **Electrical:** 115 or 230 VAC ($\pm 10\%$), 50/60 Hz, single phase, 500 watts
- **Instrument Air:** Clean, dry filtered air at 600–1000 cc/minute and regulated at 0.70 kg/cm² (10 psig)

Signal Outputs

- **Analog Outputs:** Isolated 4–20 mAdc Flash Temperature (standard); Isolated 4–20 mAdc Sample Temperature (optional)
- **Alarm Relays:** SPST fail-safe alarm relay
- **Serial Output:** Optional RS-232C serial output available
- **"Come Read" Contact:** Dry relay contact (standard)

Signal Inputs

- **Customer Alarm:** Terminals available for customer-supplied dry contact alarm connection
- **Remote Standby:** Terminals available for customer-supplied dry contact control of instrument; Allows control room to take monitor "off-line"

Area Classification

- **45607D:** NEC Class 1, Div 1, Groups C & D
- **45607H:** CENELEC EExd IIC T4 certified; **CE** compliant

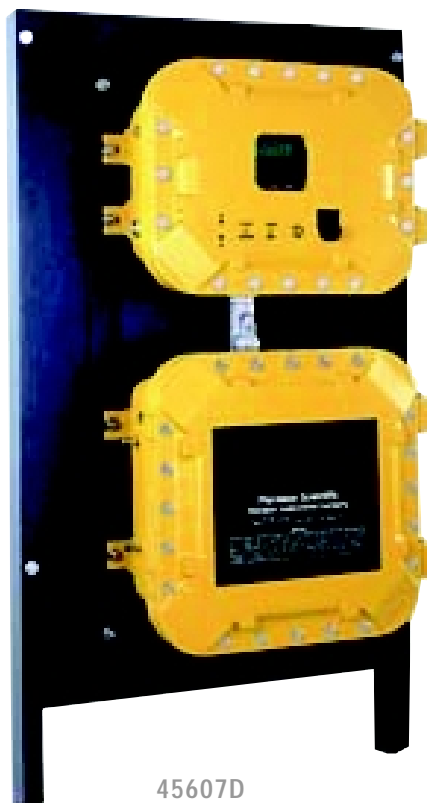
Dimensions & Weight

Uncrated:	H	W	D	units
• 45607D	997	515	307	mm
114 kg (250 lbs)	39	20	13	inches
• 45607H	1220	616	331	mm
136 kg (300 lbs)	48	24	13	inches
Crated:	H	W	D	units
• 45607D	1168	635	432	mm
182 kg (400 lbs)	46	25	17	inches
• 45607H	1372	635	432	mm
204 kg (450 lbs)	54	29	17	inches

Optional Accessories

- **Filter Coalescer** separates water from petroleum liquids and acts as high-efficiency filter
- **Sample Conditioning System** prepares and presents representative sample to analyzer with minimum lag time
- **Sample Recovery System** collects and periodically returns analyzed sample to process line

Due to PSP's commitment to continual product development, specifications are subject to change without notice.



45607D

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